

What is claimed is:

1. A method for communicating instructions in a peer-to-peer distributed network system, the method comprising the steps of:
 - (A) initiating at least one command at at least one of a plurality of controllers,
5 each of the plurality of controllers being responsive to commands received and capable of initiating and transmitting at least one command to at least one other of the plurality of controllers;
 - (B) determining whether the communication bus is clear;
 - (C) if the communication bus is clear, transmitting the at least one command
10 from the at least one of the plurality of controllers to the at least one other of the plurality of controllers via the communication bus;
 - (D) receiving the at least one command, from the at least one of the plurality of controllers, at the at least one other of the plurality of controllers;
 - (E) determining if a message acknowledge, generated by the at least one other
15 of the plurality of controllers, is received at the at least one of the plurality of controllers;
 - (F) if the message acknowledge is not received, determining whether a timeout counter has expired and attempting to retry transmitting the at least one command if the timeout counter has not expired;
 - (G) if the timeout counter is determined to have expired, determining whether
20 a retry counter has expired; and

(H) if the retry counter is determined to have expired, activating a transmit error alarm;

wherein said at least one transmitted command includes said at least one command initiated at the at least one of the plurality of controllers and

5 wherein said at least one initiated command is independent of at least one command previously received by the least one of the plurality of controllers.

2. The method of claim 1, further comprising the step of providing the plurality of controllers connected via a communication bus.

10 3. The method of claim 1, the step of transmitting the at least one command, further comprising:

(A) queuing the at least one command in a transmit buffer;

(B) transferring the at least one command from the transmit buffer to a transmit port;

15 (C) initiating the retry counter and the timeout counter; and

(D) transmitting the at least one command from the transmit port to a specified data port at the at least one other of the plurality of controllers.

4. The method of claim 3, further comprising the step of, if the message acknowledge is received, clearing the at least one command queued in the
20 transmit buffer.

5. The method of claim 1, the step of determining whether the timeout counter has expired further comprising:
- (A) decrementing the timeout counter; and
 - (B) querying whether the timeout counter has expired.
- 5 6. The method of claim 1, the step of determining whether the retry counter has expired further comprising:
- (A) resetting the timeout counter; and
 - (B) decrementing the retry counter.
7. The method of claim 1, wherein if the retry counter is determined to have
10 expired, further comprising the step of indicating that transmission of the at least one command failed.
8. The method of claim 1, further comprising the step of, if the retry counter is determined not to have expired, attempting to retry transmitting the at least one command.
- 15 9. The method of claim 1, wherein the at least one command is selected from a group comprising: adjust operation, review operation, sensor review, water schedule, and initiate watering.

10. A method for communicating instructions in a peer-to-peer distributed network system having a plurality of controllers connected via a communication bus, each of the plurality of controllers being responsive to commands received and capable
5 of initiating and transmitting at least one command to at least one other of the plurality of controllers, the method comprising the steps of:
- (A) reading a communication port at one of the plurality of controllers;
 - (B) determining whether the communication port is currently active;
 - (C) if the communication port is currently active, indicating that the
10 communication bus is not clear;
 - (D) if the communication port is not currently active, determining whether a delay counter is expired; and
 - (E) if the delay counter is expired, indicating that the communication bus is clear.
- 15 11. The method of claim 10, the step of indicating that the communication bus is not clear further comprising:
- generating a random number;
 - loading the random number into the delay counter; and
 - deasserting a bus clear flag.

12. The method of claim 10, the step of determining whether the delay counter is expired further comprising:
- decrementing the delay counter;
- determining whether the delay counter determining whether the delay counter has
- 5 decremented to zero; and
- if the delay counter has not decremented to zero, returning to step (A).
13. The method of claim 10, the step of indicating that the communication bus is not clear further comprising asserting a bus clear flag.
14. The method of claim 10, wherein the commands are selected from a group
- 10 comprising: adjust operation, review operation, sensor review, water schedule, and initiate watering.